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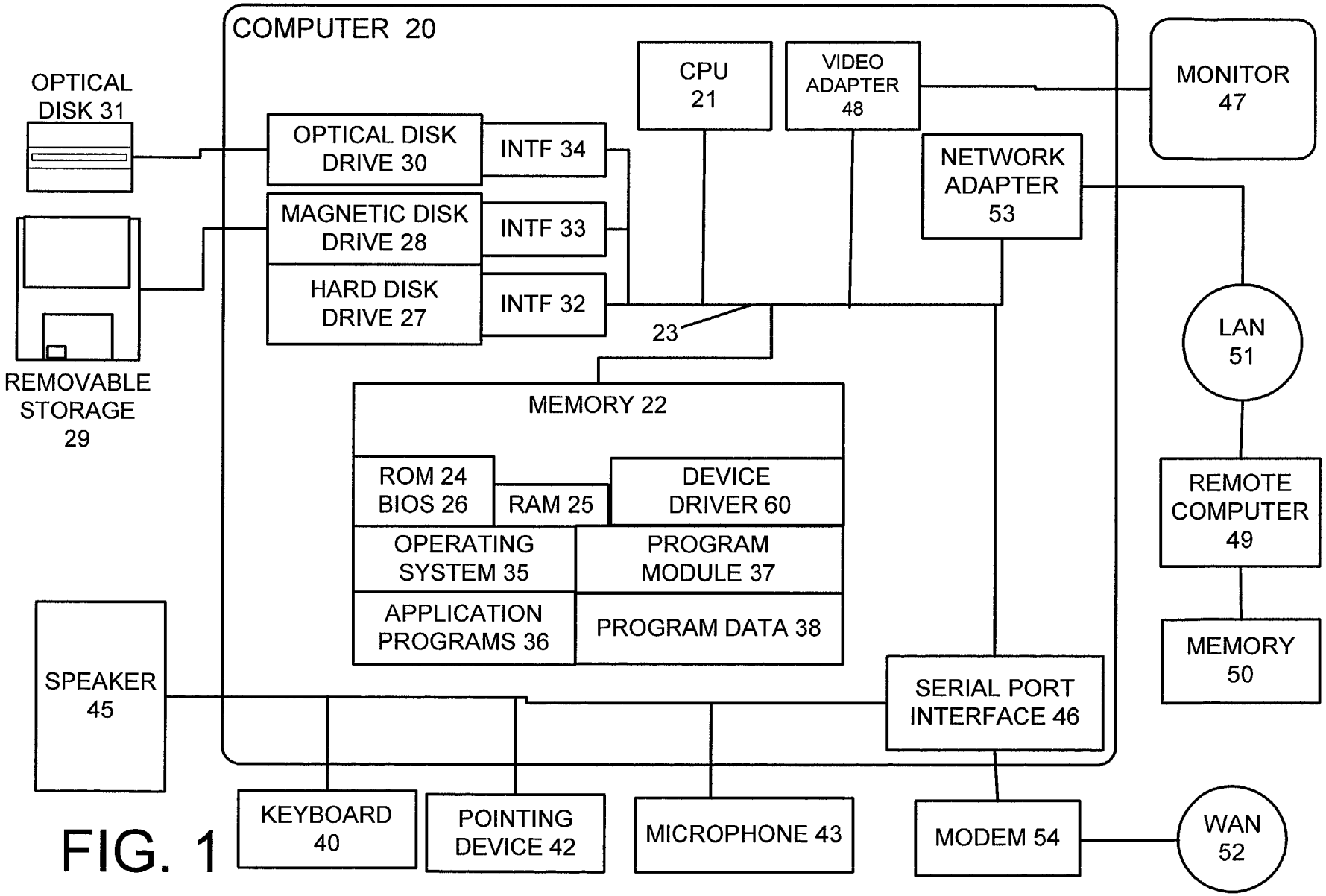


FIG. 1

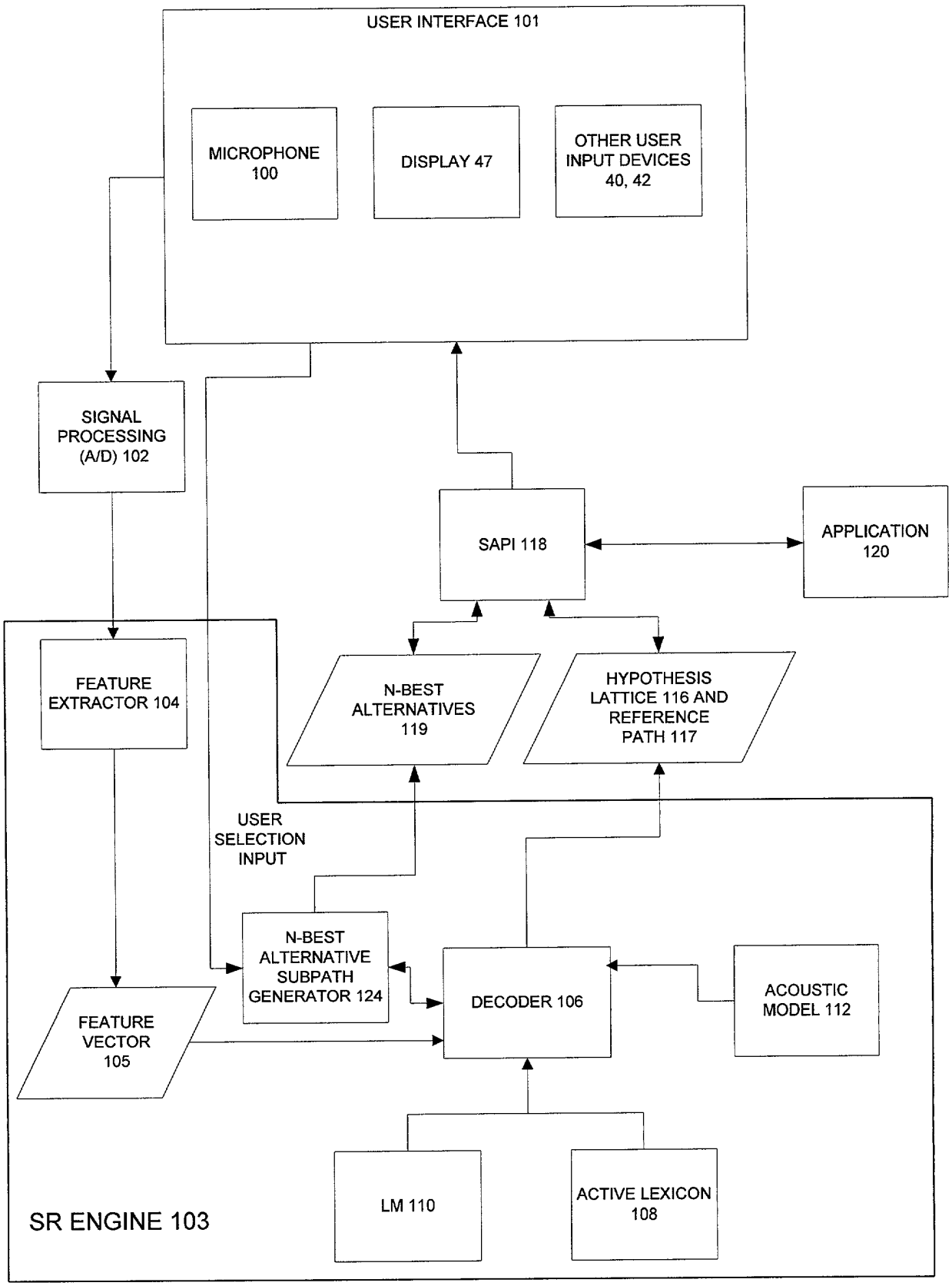

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ACOUSTIC MODEL 112
FEATURE VECTOR 105
LM 110
ACTIVE LEXICON 108
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FIG. 2

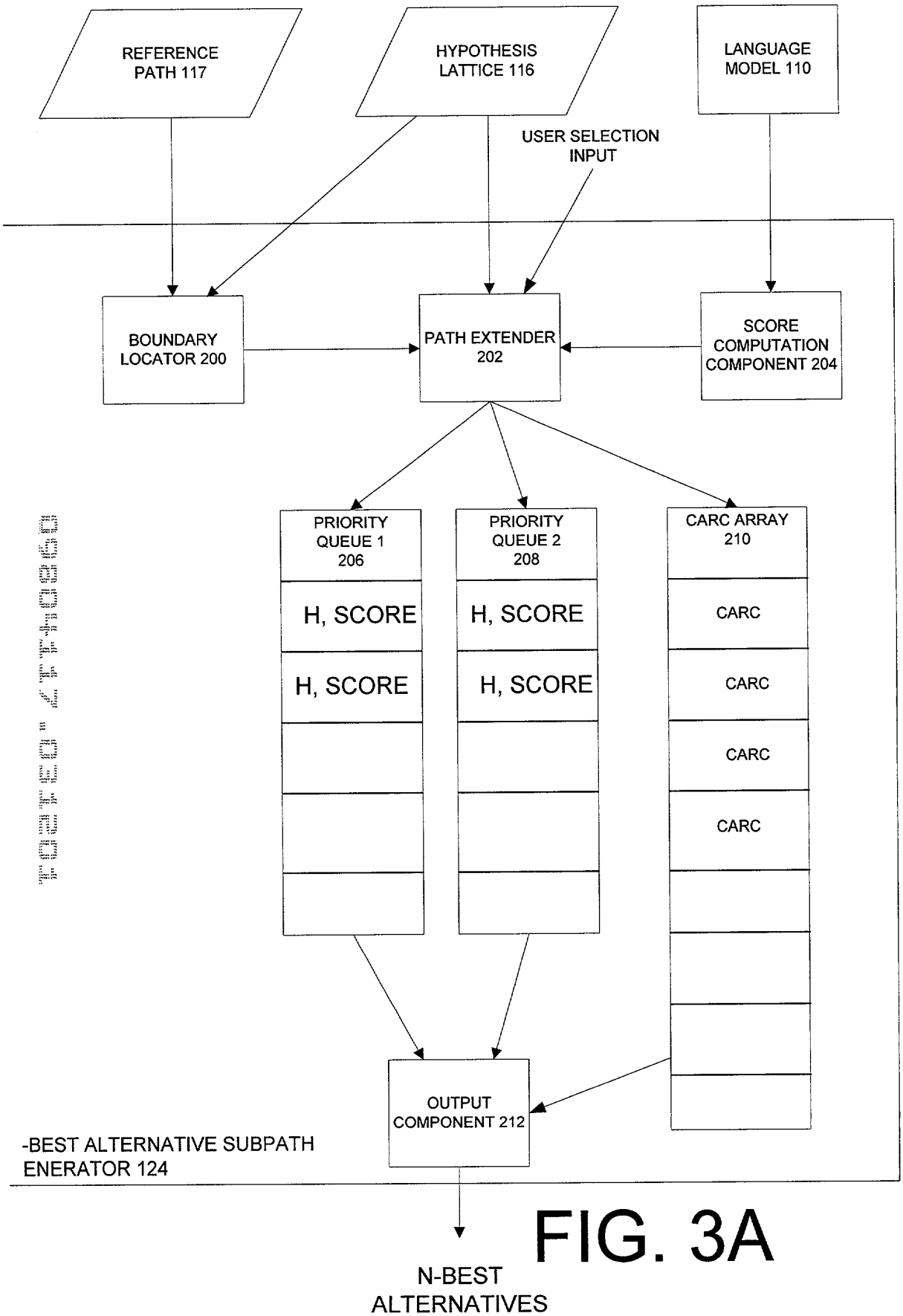

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SCORE COMPUTATION COMPONENT 204
PRIORITY QUEUE 1 206
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CARC ARRAY 210
H, SCORE
H, SCORE
H, SCORE
H, SCORE
CARC
CARC
CARC
CARC
OUTPUT COMPONENT 212
-BEST ALTERNATIVE SUBPATH ENERATOR 124
N-BEST ALTERNATIVES

FIG. 3A

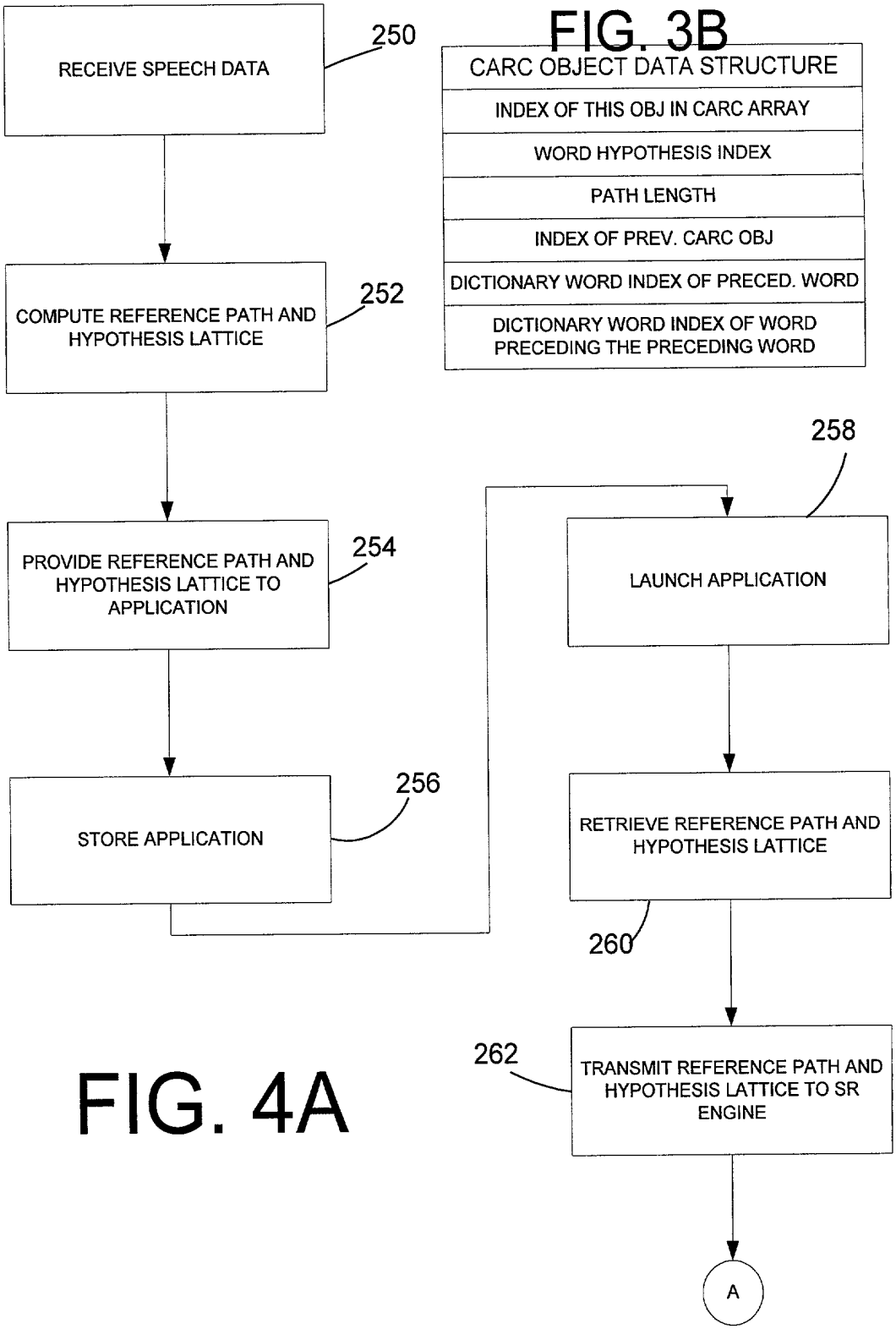


FIG. 4A

FIG. 3B

CARC OBJECT DATA STRUCTURE
INDEX OF THIS OBJ IN CARC ARRAY
WORD HYPOTHESIS INDEX
PATH LENGTH
INDEX OF PREV. CARC OBJ
DICTIONARY WORD INDEX OF PRECED. WORD
DICTIONARY WORD INDEX OF WORD PRECEDING THE PRECEDING WORD

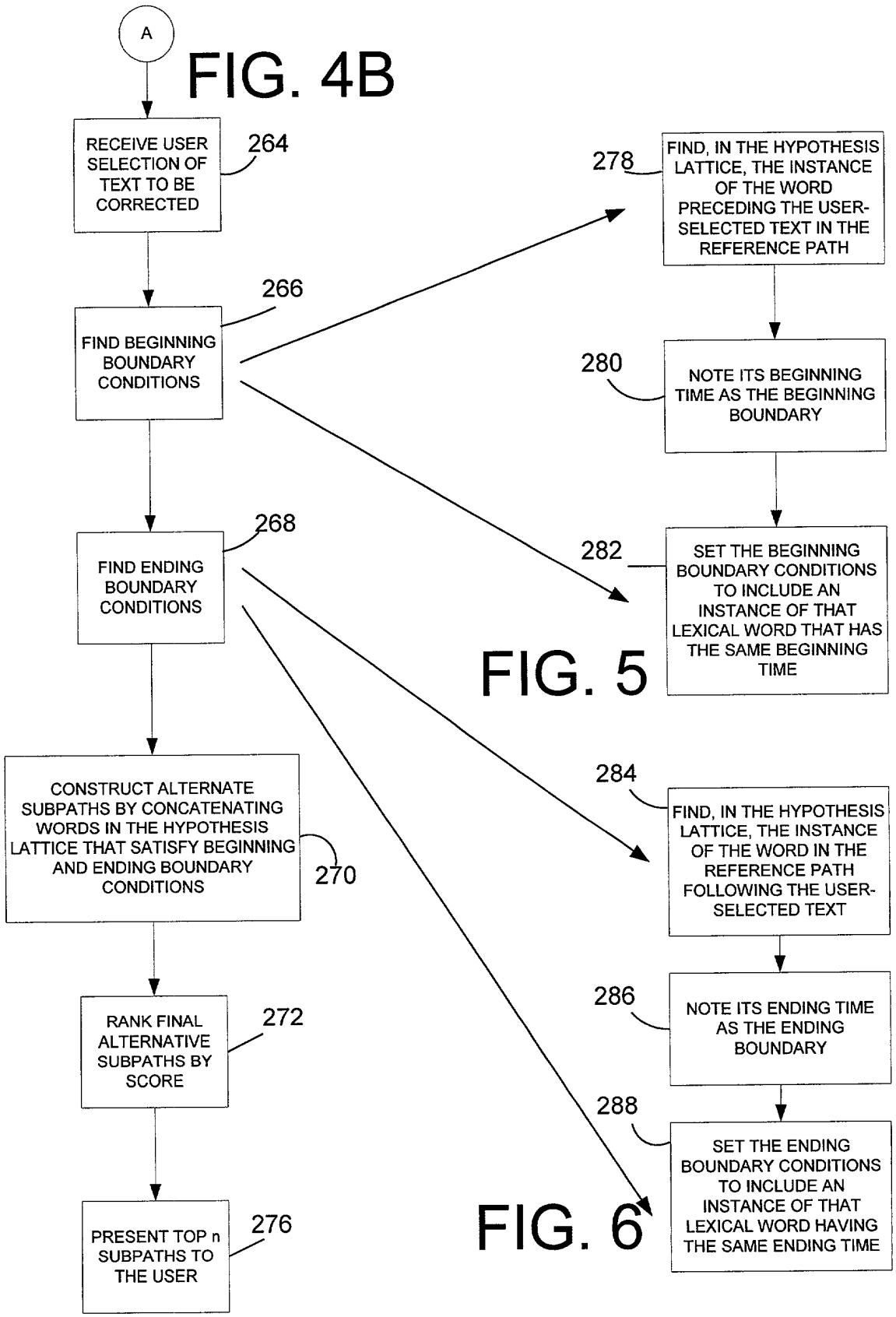


FIG. 4B

FIG. 5

FIG. 6

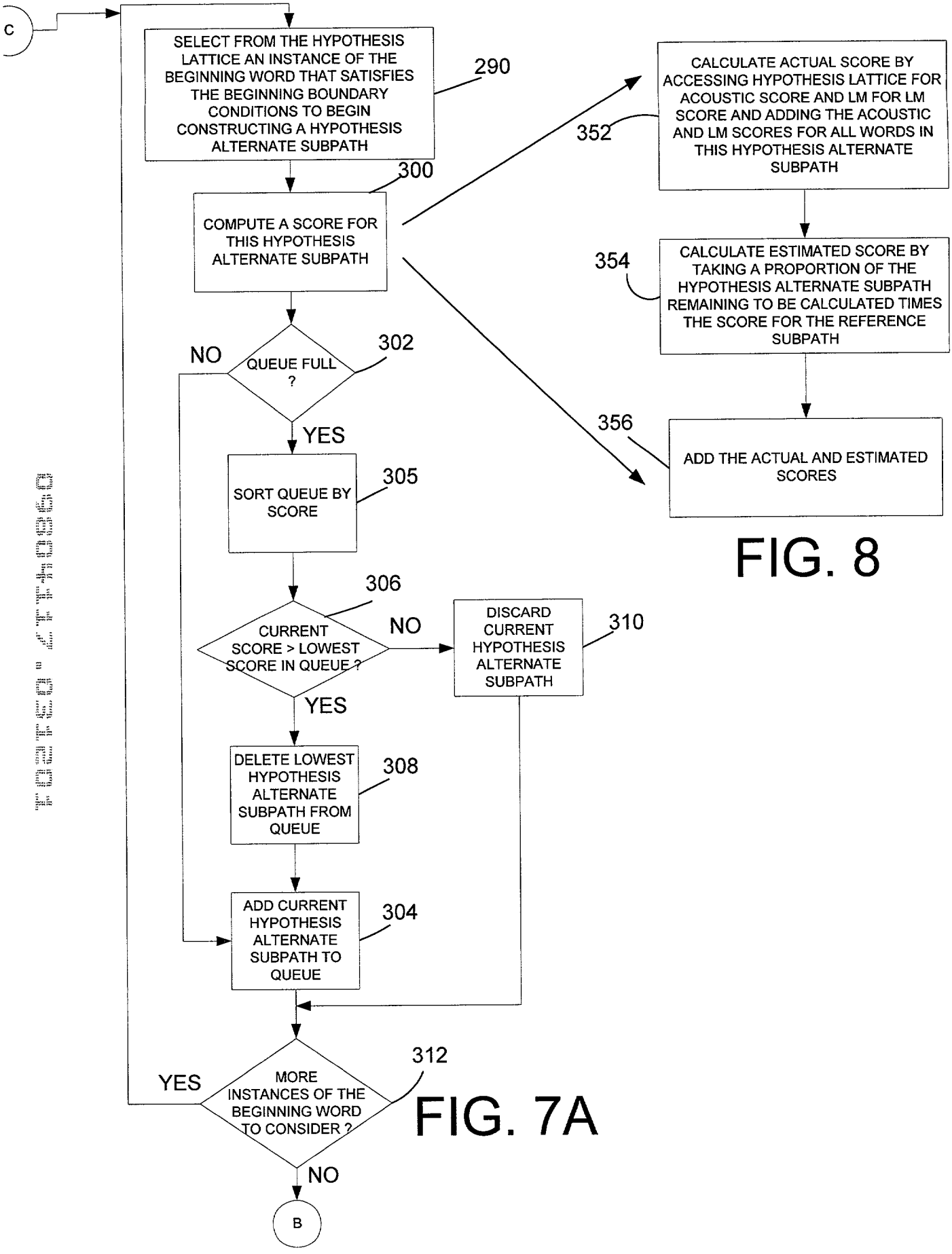

C
SELECT FROM THE HYPOTHESIS LATTICE AN INSTANCE OF THE BEGINNING WORD THAT SATISFIES THE BEGINNING BOUNDARY CONDITIONS TO BEGIN CONSTRUCTING A HYPOTHESIS ALTERNATE SUBPATH
290
COMPUTE A SCORE FOR THIS HYPOTHESIS ALTERNATE SUBPATH
300
CALCULATE ACTUAL SCORE BY ACCESSING HYPOTHESIS LATTICE FOR ACOUSTIC SCORE AND LM FOR LM SCORE AND ADDING THE ACOUSTIC AND LM SCORES FOR ALL WORDS IN THIS HYPOTHESIS ALTERNATE SUBPATH
352
CALCULATE ESTIMATED SCORE BY TAKING A PROPORTION OF THE HYPOTHESIS ALTERNATE SUBPATH REMAINING TO BE CALCULATED TIMES THE SCORE FOR THE REFERENCE SUBPATH
354
ADD THE ACTUAL AND ESTIMATED SCORES
356
QUEUE FULL ?
302
NO
YES
SORT QUEUE BY SCORE
305
CURRENT SCORE > LOWEST SCORE IN QUEUE ?
306
NO
DISCARD CURRENT HYPOTHESIS ALTERNATE SUBPATH
310
YES
DELETE LOWEST HYPOTHESIS ALTERNATE SUBPATH FROM QUEUE
308
ADD CURRENT HYPOTHESIS ALTERNATE SUBPATH TO QUEUE
304
MORE INSTANCES OF THE BEGINNING WORD TO CONSIDER ?
312
YES
NO
B

FIG. 8

FIG. 7A

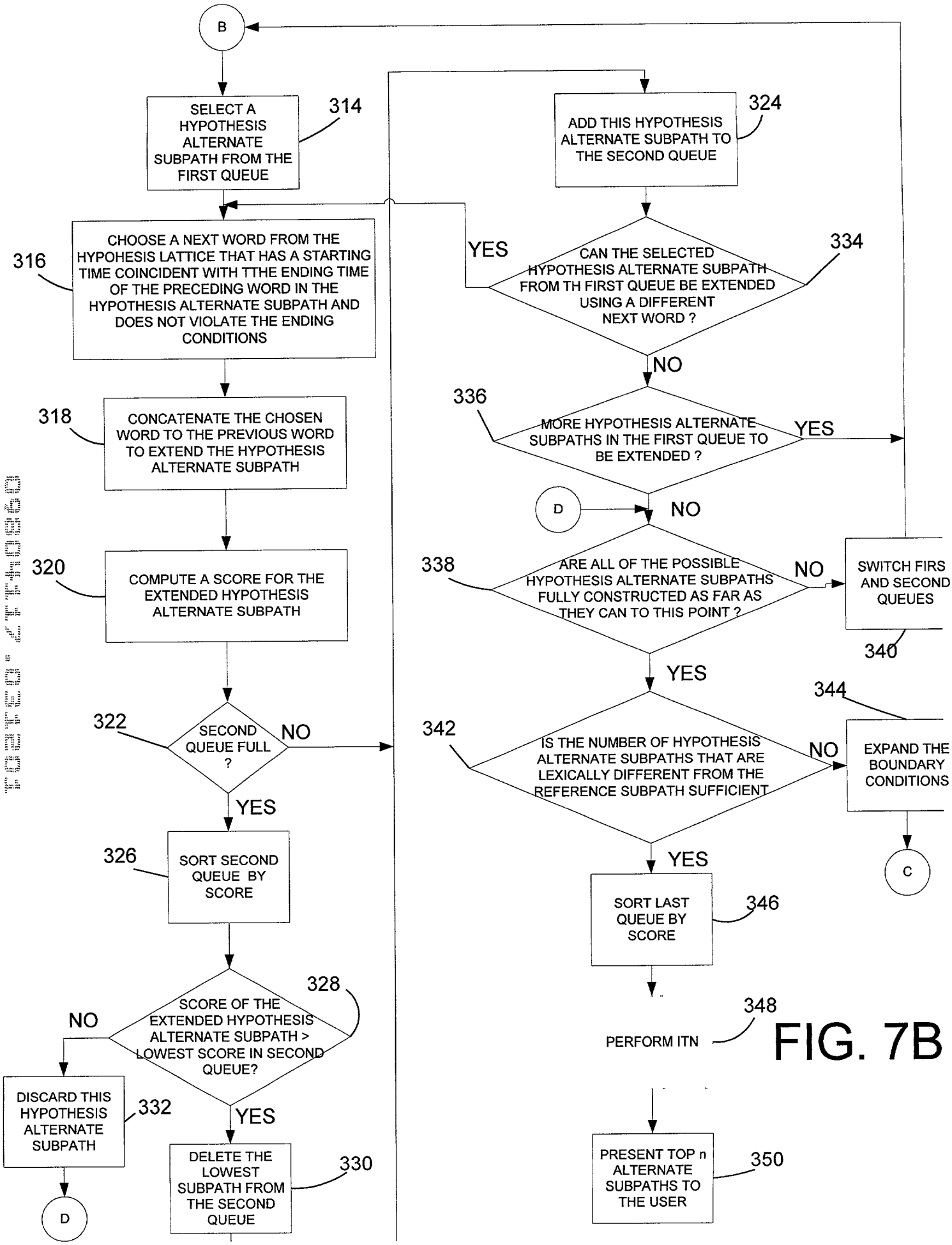

B
SELECT A HYPOTHESIS ALTERNATE SUBPATH FROM THE FIRST QUEUE
314
CHOOSE A NEXT WORD FROM THE HYPOHESIS LATTICE THAT HAS A STARTING TIME COINCIDENT WITH TTHE ENDING TIME OF THE PRECEDING WORD IN THE HYPOTHESIS ALTERNATE SUBPATH AND DOES NOT VIOLATE THE ENDING CONDITIONS
316
CONCATENATE THE CHOSEN WORD TO THE PREVIOUS WORD TO EXTEND THE HYPOTHESIS ALTERNATE SUBPATH
318
COMPUTE A SCORE FOR THE EXTENDED HYPOTHESIS ALTERNATE SUBPATH
320
SECOND QUEUE FULL ?
322
NO
YES
SORT SECOND QUEUE BY SCORE
326
SCORE OF THE EXTENDED HYPOTHESIS ALTERNATE SUBPATH > LOWEST SCORE IN SECOND QUEUE?
328
NO
YES
DISCARD THIS HYPOTHESIS ALTERNATE SUBPATH
332
DELETE THE LOWEST SUBPATH FROM THE SECOND QUEUE
330
D
ADD THIS HYPOTHESIS ALTERNATE SUBPATH TO THE SECOND QUEUE
324
CAN THE SELECTED HYPOTHESIS ALTERNATE SUBPATH FROM TH FIRST QUEUE BE EXTENDED USING A DIFFERENT NEXT WORD ?
334
YES
NO
MORE HYPOTHESIS ALTERNATE SUBPATHS IN THE FIRST QUEUE TO BE EXTENDED ?
336
YES
D
NO
ARE ALL OF THE POSSIBLE HYPOTHESIS ALTERNATE SUBPATHS FULLY CONSTRUCTED AS FAR AS THEY CAN TO THIS POINT ?
338
NO
SWITCH FIRS AND SECOND QUEUES
340
YES
IS THE NUMBER OF HYPOTHESIS ALTERNATE SUBPATHS THAT ARE LEXICALLY DIFFERENT FROM THE REFERENCE SUBPATH SUFFICIENT
342
NO
EXPAND THE BOUNDARY CONDITIONS
344
C
YES
SORT LAST QUEUE BY SCORE
346
PERFORM ITN
348
PRESENT TOP n ALTERNATE SUBPATHS TO THE USER
350

FIG. 7B